

ABSTRACT

[0039]

A method and apparatus related to vehicular engine and exhaust components relies upon electromagnetic pulse welding techniques to attach and assemble a component that is free from weld spatter, such that the component may be used in a vehicle engine or exhaust system at a point upstream from the system's catalytic brick (including, but not limited to, components for turbo chargers, exhaust tubes and other such elements). The apparatus includes a first member, and an optional second tube, electromagnetically pulse welded to a second member. The members may be tubes or stamped metal pre-forms. Additionally or alternatively, one of the members may be a flange, another tubular assembly or a connector having single-ply, multi-layered or wire-braided construction. The method essentially involves providing and positioning the pieces to create a flow path and then electromagnetically pulse welding the pieces together in such a way as to avoid formation of weld spatter. The method also contemplates the use of a plastic or non-conductive guide member to aid in the protection, positioning and/or appropriate spacing of the workpieces being electromagnetically pulse welded. Reliance upon electromagnetic pulse welding produces components with superior results and performance in comparison to the prior art.